
**THE NELSON MANDELA
AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY
(NM-AIST)**

7th June 2021

VIVA VOCE ANNOUNCEMENT

FROM: Dean LiSBE

TO: The Public

Ref: VIVA VOCE EXAMINATION OF A PhD CANDIDATE, MS. UPENDO MSALILWA (REG. NO. P193/T16)

Please, refer to the heading above,

The School of **Life Sciences and Bioengineering (LiSBE)** at the **NM-AIST**, wishes to announce the VIVA-VOCE Examination of **Ms. Upendo Msalilwa**, a PhD candidate in **Life Sciences**, specialized in **Biodiversity and Ecosystems Management**.

The VIVA VOCE examination is scheduled on **Monday, 21st June 2021 in Room B202 from 09:00 am to 12:00 noon.**

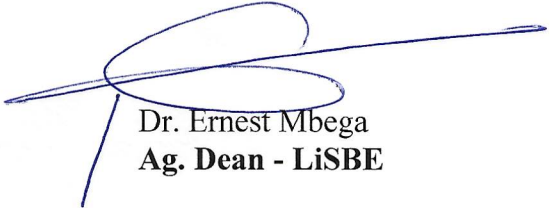
Research Title: Assessment of the Status of African Baobab Populations and Fatty Acids Characterization of Its Crude Oil in Tanzania

ABSTRACT

Baobab (*Adansonia digitata* L.) is a deciduous non-timber tree species that is facing severe threats from both anthropogenic and climatic pressures across its range states. Additionally, baobab seed oil has been used for many years by local populations as medicine to treat different diseases, beauty, and food purposes. However, consumption of baobab seed oil has been reported to cause health effects emanating from the presence of carcinogenic ingredients known as Cyclopropenoid Fatty Acids (CFPAs). Ecological survey and laboratory analysis were carried out in the collection of data in this study. In ecological survey, stratified random sampling design composed of the three land-use types: strictly protected areas, non-strictly protected areas, and unprotected areas. Baobabs were sampled in belt transect of 1 km long and a 50 m wide, which were carried out in 337 grids located in different land-uses types. In the laboratory analysis, the physico-chemical properties were determined according to Official Methods of Analysis of the Association of Official Analytical Chemists. The quantification of fatty acid before and after

heating was done by the analysis of derivative fatty acid methyl-esters by using Gas-Liquid Chromatography. Baobab density was found to be highest in strictly protected areas and the lowest density in unprotected areas. The density of adult, sub-adult and juvenile populations were 1.53 ± 0.105 , 0.82 ± 0.149 and 0.33 ± 0.253 plants/ha respectively. Furthermore, the results show bell shaped and inverse *J*-shaped distributions in the unprotected areas and strictly protected areas, respectively. The number of baobabs damaged was higher than undamaged in all land-use types. There were no significant differences in terms of physico-chemical properties in three different regions. It was found that the baobab crude oil contains mainly twelve essential fatty acids and two different CFPAs. The most abundant fatty acid was Palmitic acid, Oleic acid and Linoleic acid in all the three regions. The major breakdown of CPFAs started at 200°C that would be the best temperature in the refining process of the baobab oil. In species like this, with less and slow recruitment rate, increased human and climate change pressures on land are likely to drive the species to extinction in these fragmented populations. Also refining the baobab oil at higher temperatures might be the best way of reducing the CFPAs.

You are all welcome!!



Dr. Ernest Mbega
Ag. Dean - LISBE